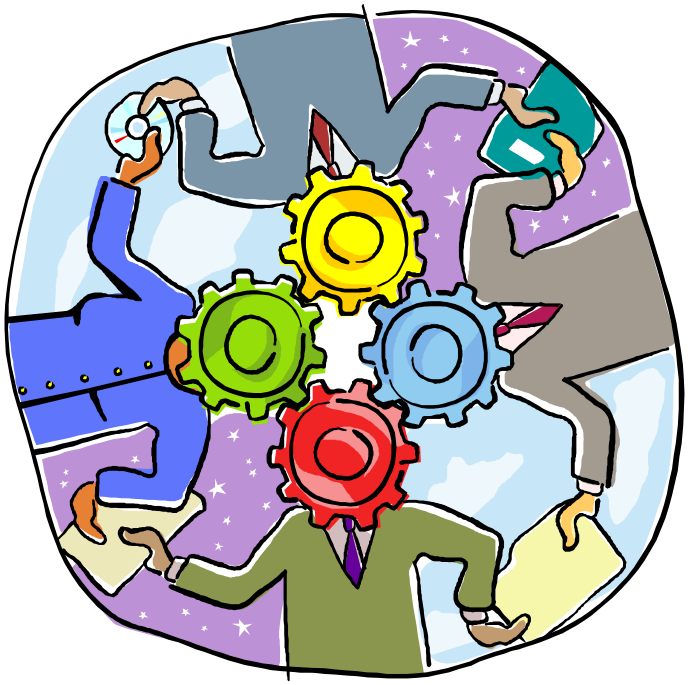
Product Stewardship Strategy



Department of Ecology

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Introduction

Product stewardship is an emerging tool that Ecology has begun to use to fulfill its mission of promoting sustainable communities and sustainable natural resource use. Product stewardship provides a path toward sustainability with environmental and economic benefits that move beyond a traditional "end-of-pipe" focus, or even the more recent "pollution prevention" approach.

In 1998, Ecology adopted a set of guiding "Principles of Sustainability". These principles provide the foundation for Ecology's movement towards product stewardship initiatives and activities.

Product stewardship is an environmental management tool that articulates these principles. Along with reducing toxicity and environmental degradation, product stewardship asserts that the concept of waste can be eliminated. Product stewardship also provides a framework to understand all "costs" of a product throughout it's life cycle—from design to end-of-life. Investing resources in the design phase of a product also leads to a drastic reduction of waste and related cost!

Ecology's Product Stewardship Task Force is composed of staff from the Hazardous Waste and Toxics Reduction and Solid Waste and Financial Assistance programs:

HWTR: Chipper Hervieux, Patricia Jatczak, Jerry Parker
SWFAP: Emmie Johnson, Dave Nightingale, Jay Shepard, Paige Sorensen

Early product stewardship efforts tend to focus on the end-of-life management issues, therefore waste management staff have an immediate interest in promoting this approach to waste reduction. Designating responsibility for end-of-life management can creat major incentives to improve desing and distribution. A more comprehensive vision of product stewardship includes consideration of what we permit and about the incentives to product stewardship provided by government. It is about affecting the system upfront, being proactive, and working with industry to achieve our outcomes.

Product Stewardship Defined

Product stewardship is achieved when those who design, produce, sell, use, or dispose of a product, assume responsibility for the product's environmental, social and economic costs throughout the product's life cycle. The guiding principles of product stewardship, developed by the **National Product Stewardship Institute** with its state and local government members, require:

- **Responsibility:** The greater the ability an entity has to minimize a product's life-cycle impacts, the greater is its degree of responsibility, and opportunity, for addressing those impacts. It is shared among all associated with the product from conception to end of life.

- **Internalizing Costs:** All product lifecycle costs – from using resources, to reducing health and environmental impacts throughout the production process, to managing products at the end-of-life – should be included in the total product cost. The environmental costs of product manufacture, use, and disposal should be minimized, to the greatest extent possible, for local and state governments, and ultimately shifted to the manufacturers and consumers of products. Manufacturers should thus have a direct financial incentive to redesign their products to reduce these costs.

- **Incentives for Cleaner Products and Sustainable Management Practices:** Product stewardship policies and programs should create incentives for the manufacturer to design and produce "cleaner" products – ones made using less energy, materials, and toxics, and which result in less waste (through reduction, reuse, recycling, and composting) and use less energy to operate. These policies should also create incentives for the development of a sustainable and environmentally sound system to collect, reuse, and recycle products at the end of their lives.

- **Flexible Management Strategies:** Those that are responsible for reducing the health and environmental impacts of products should have flexibility in determining how to most effectively address those impacts. The performance of responsible parties shall be measured by the achievement of goal-oriented results.

- **Clear Roles and Relationships:** Industry should provide leadership in realizing these principles. Government will provide leadership in promoting the practices of product stewardship through procurement, technical assistance, program evaluation, education, market development, agency coordination, and by addressing regulatory barriers and, where necessary, providing regulatory incentives and disincentives. Industry and government shall provide – and consumers should take full advantage of – information needed to make responsible environmental purchasing, reuse, recycling, and disposal decisions.

Why Product Stewardship?

The development and use of products, with the resulting pollution generated at all stages, has far reaching impacts that limit our ability to achieve sustainable natural resource management and sustainable communities. Manufacturers have little incentive to design products that minimize environmental impacts. Consider:

- For every pound of product manufactured in the United States, 33 pounds of waste are generated.[1]

- The total annual material outputs to the environment is about **95 tons** per capita in the United States.[2] That is equal to about 560 million tons of material being released into the environment by Washington residents.

- Sports Utility Vehicles (SUVs) are now the dominant element in the vehicle market. The average sports-utility vehicle is driven 14,000 miles per year, burning 915 gallons of gasoline. This generates 114 lbs of hydrocarbons, 894 lbs of Carbon Monoxide, 59 lbs of Nitrogen Oxides, and 16,800 lbs of Carbon Dioxide.[3] However, neither the manufacturer or user pays the full cost of this transportation choice in relation to road costs, land costs, and land use impacts, and public health in relation to cancer, lung disease, asthma, nor birth defects associated with automobile pollution.

- Even though recycling is projected to continue at the current volume and participation rate, the overall recycling rate compared to what is disposed is projected to drop to below 20% by 2021. The highest rate reached was 38% in the mid 1990s.

When implemented, product stewardship provides incentives and motivation for manufacturers to think differently about resources and materials and to incorporate toxicity reduction, energy conservation, reuse and recycling into product design. It can also reduce costs to government and taxpayers for pollution control and environmental degradation, energy usage and disposal of unusable and toxic materials by placing greater financial responsibility on manufacturers and purchasers.

Businesses that employ product stewardship strategies have realized economic benefits such as reduction in regulation, waste handling costs, raw materials cost, and liability, with improved market appeal. For example:

- Designtex manufactures fabrics sustainably. Through team processes they created a fabric line that uses pesticide free plant and animal fibers finished with

[1] "Natural Capitalism", Hawkin, Lovins and Lovins. 1999.
[2] "The Weight of Nations", World Resources Institute, 2000.
[3] U.S. Environmental Protection Agency, National Vehicle and Fuel Emissions Laboratory EPA420-F-97-037.

dyes and other chemicals that are safe for decomposition in the soil without threat to human health or the environment. The manufacturing process itself is closed–loop and all by-products compostable.

- Xerox has led innovations in product design for end of life management. Copying machines are designed to be disassembled, with parts reused in new equipment. The company has reduced hazardous materials use and reduced the number of raw material types used to create cross production compatibility. Their goal is to achieve a 90% reduction in all emissions from their own facilities and from their suppliers' facilities worldwide.

Product Stewardship in Action

With the necessary incentives and regulations, manufacturers, consumers, and the government can all take active roles in reducing the impacts of the products we consume.

Manufacturers and distributors can:

- Design goods that reduce or eliminate toxics from the production and the product
- Produce goods that are more durable, reusable, and recyclable
- Reduce energy and materials consumption
- Improve worker safety
- Reduce, with a goal to eliminate, air and water emissions and waste disposal
- Take responsibility for the end-of-life management of the products
- Employ materials management, product leasing, dematerialization, resource conservation, product take back (See Appendix A for descriptions of the product stewardship practices).

Consumers can:

- Select products that have the least environmental impact
- Return products for reuse or remanufacture when no longer useful
- Become more informed about where and how products are made and at what cost to the people and the environment
- Purchase products from businesses that employ product stewardship
- Explore procurement options such as purchasing used goods, renting or leasing

Governments can:

- Incorporate product stewardship into regulatory and permitting practices
- Work in partnership with industry and consumers/taxpayers through technical assistance, research, and public involvement
- Inform stakeholders of the advantages of product stewardship
- Purchase products from businesses that employ product stewardship
- Stimulate market interest in environmentally sound products
- Eliminate subsidies that promote waste and unnecessary consumption
- Create incentives for using renewable energy and resources and sustainable products

Who is Already Practicing Product Stewardship?

Product stewardship activities, as we know them today, have been happening for over a decade, and product stewardship programs continue to emerge and mature around the world. Product stewardship had its early origins in Germany's packaging industry. It encountered some early difficulties, but has evolved over the years and is now not only successful in significantly reducing waste, but is also profitable.[4]

Product stewardship is practiced widely in Europe and Asia. In the U.S. it is starting to come of age. There are a number of manufacturers–individually and in partnerships–that are successfully implementing product stewardship. Technical and policy groups have also formed to help support and promote product stewardship, including the **Center for Clean Products and Clean Technologies at the University of Tennessee**, the **National Product Stewardship Institute**, and the **Northwest Product Stewardship Council** here in the Northwest.

(See Appendix B for examples of product stewardship initiatives).

[4] Manufacturer's Responsibility: Case Studies and Options for the U.S., Science Applications International Corporation for NY City Department of Transportation, August, 1998

What is Ecology's Role?

The product stewardship policy we propose recommends that the agency incorporate product stewardship into our operations. It outlines Ecology's authority to do this work, describes our current activities, and outlines future actions the Agency can take to promote sustainable manufacturing, business, and consumer behaviors.

Authority

Product Stewardship embraces the concepts of Ecology's enabling legislation and the State Environmental Policy Act, Chapter 43.21C RCW, which was adopted well before the term "product stewardship" entered common usage in the 1990's. Ecology was given a sustainability mandate at this broad level when the legislature declared it is the continuing policy of the state of Washington, to:

(a) "Foster and promote the general welfare;
(b) to create and maintain conditions under which man and nature can exist in productive harmony; and
(c) fulfill the social, economic, and other requirements of present and future generations of Washington citizens."

In order to carry out the policy in Chapter 43.21C RCW, the legislature stated that:

> "It is the continuing responsibility of the state of Washington and all agencies of the state to use all practicable means, consistent with other essential considerations of state policy, to improve and coordinate plans, functions, programs, and resources to the end that the state and its citizens may fulfill the responsibilities of each generation as trustee of the environment for succeeding generations."

Through Chapter 70.95C RCW Waste Reduction, the legislature further engaged the department, providing additional broad responsibilities to reduce contamination of the air, land, and water. The statute defines "waste" as:

> "Any solid waste as defined under RCW 70.95.030, any hazardous waste, any air contaminant as defined under RCW 70.94.030, and any organic or inorganic matter that shall cause or tend to cause water pollution as defined under RCW 90.48.020."

It defines waste reduction as:

> All in-plant practices that reduce, avoid, or eliminate the generation of waste or the toxicity of wastes, prior to generation, without creating substantial new risks to human health or the environment. It further states that waste reduction can be achieved by encouraging voluntary efforts to redesign industrial, commercial, production and other processes to result in the reduction or elimination of waste byproducts and to maximize the in-process reuse and reclamation of valuable spent material. Those processes referred to include all industrial, commercial, production, and other processes that result in the generation of waste.

The legislature directed the department, through this statute, to be the coordinating center for all state agency programs that provide technical assistance to waste generators and serve as the state's lead agency and promoter of such programs. The agency can provide and

render consultation, sponsor workshops and seminars, administer an informational data base and provide a comprehensive referral service through a hotline, coordinate public education programs, work with institutes of higher education, and operate an intern program to provide technical assistance and research projects.

The extent to which Ecology can to encourage product stewardship will most likely made on a case by case basis. Legal advice will be required to advice under what conditions additional rule making or legislative authorization for product stewardship is necessary.

Statutes governing water resource management likewise specifically emphasize water use efficiency as an alternative to increased water use.

Ecology's Current Product Stewardship Activities

In the last ten years, Ecology's work has evolved so that we look ahead to prevent pollution and be more pro-active than we have in the past. We've been working at the edges of product stewardship (without using that term) for a number of years through various activities, especially in the waste reduction programs. Since early 2000, Ecology waste reduction staff have become involved in specific product stewardship activities, organizations, and projects. Staff working in this area formed a task force to stay coordinated on activities. Listed below are some of the main activities in which we are involved.

1. The National Product Stewardship Institute

The goal of the new Product Stewardship Institute (PSI) is to coordinate and assist states in negotiations with industry on product stewardship for specific commodities. Ecology was recruited to participate in this new organization, and is a founding member. Staff are actively involved in the various committees and product workgroups coordinated by the Institute.

2. National Electronics Product Stewardship Initiative (NEPSI)

The National Electronics Product Stewardship Initiative is a national effort coordinated by the PSI to dialogue with industry and government on electronics product stewardship. The State of Washington asked for and received a government seat at the negotiating. A series of multi-stakeholder meetings are underway. The goal is to reach an agreement for responsible manufacture, use, and reuse or recycling of these products.

3. Solid Waste Association of North America (SWANA)

SWANA is a national solid waste association that represents solid waste professionals in the public and private sector. Their board adopted a product stewardship policy which mirrors that of the Product Stewardship Institute. Ecology staff and various Washington local governments promoted a strong national product stewardship policy for SWANA.

4. Association of State and Territorial Air and Solid Waste Management Officials (ASTSWAMO)

ASTSWAMO is planning to launch a product stewardship workgroup.

5. Northwest Product Stewardship Council (NWPSC)

The Northwest Product Stewardship Council (NWPSC) is a regional group of agencies and non-profit organizations that work with business to integrate product stewardship into the policy and economic structures of the Pacific Northwest. Ecology staff participate on the steering committee and sub-committees of this group. Ecology staff assists the NWPSC in their effort to promote environmentally preferable computer purchasing. Staff helped design a workshop for information technology purchasers.

6. Western Electronics Product Stewardship Initiative (WEPSI)

The Western Electronics Product Stewardship Initiative, a project of the NWPSC, engages in a regional multi-stakeholder dialogue on electronics product stewardship. WEPSI includes EPA Regions 9 & 10 states, but Washington, Oregon, and California are the primary contributors. The goal is to develop a regional action plan on electronics product stewardship. Multi-stakeholder meetings are underway.

7. Ecology's "Beyond Waste" Project

Ecology's Hazardous Waste and Toxics Reduction (HWTR) Program will assess the progress of waste management and reduction in Washington State and recommend a course of action for the next 5-10 years. The Solid Waste and Financial Assistance Program (SWFAP) is developing a new state solid waste plan that incorporates the principles of sustainability and identifies product stewardship as a key strategy to reduce solid waste generation. These efforts will be coordinated as the "Beyond Waste" project.

8. Environmentally Preferable Purchasing

Ecology staff are working with the Department of General Administration's Office of State Procurement to expand the procurement of products with positive environmental attributes and to incorporate product stewardship principles into purchasing practices. Staff worked with the state purchasing office to develop a more responsible carpet procurement contract using examples from across the nation. One such model is the **Midwestern Work Group on Carpet Recycling. This organization is** in the process of creating an industry funded third-party organization responsible for the collection and recycling of carpet. The group authored a Memorandum of Understanding between industry, government, and NGO's, which went into effect January 2002. Ecology is a signatory on the MOU.

In February 2002, Governor Locke called for an Executive Order (E.O.) on Sustainable Government. Ecology staff will contribute to the development of the E.O. to apply product stewardship principles to state purchasing decisions.

Implementation Strategy

This section contains nine major areas of product stewardship activity that Ecology is involved in. Items in each section are ordered by whether it is something we are currently doing, something we are planning to do in the 2001-2003 biennium, or something that is recommended that we do. At current staffing levels, not all of the items under "plan to do" will get done. The "recommended" activities cannot occur without further resources or a shift in priorities.

The Task Force believes that all of these activities merit our full participation. The following key will be used for each activity:

Doing: We are currently doing this, with the assumption that it will continue.

Plan to Do: We hope to accomplish this in the current biennium, but acknowledge that resource levels may not allow us to do them all.

Recommend: We highly recommend that these activities be undertaken, and acknowledge that they cannot be with the current resource level.

Coordination and Communication

Product stewardship is not one particular thing that can be achieved by a single decision or actor. A whole continuum of ideas, activities, and action steps exist that can move an industry or society towards responsibility for the products created and consumed before and beyond the factory gate.

Doing

- Sharing information, resources, and ideas on how to make product stewardship the norm in society.
- Inform and educate our stakeholders about the benefits of product stewardship.
- Stay informed and to continue to participate in this dialogue, working in partnership with others engaged in this work.
- Continue the Product Stewardship Task Force as an ongoing sub-team of the agency's Sustainability Team.

Participating in Established Groups and Initiatives

Ecology must be poised to "strike while the iron's hot" and fully participate in product stewardship opportunities when they present themselves.

Doing

- Continue to participate in local and national product stewardship efforts:
  - The National Product Stewardship Institute
  - The National Electronics Product Stewardship Initiative
  - Solid Waste Association of North America
  - Association of State and Territorial Air and Solid Waste Management Officials
  - The Northwest Product Stewardship Council
  - The Western Electronics Product Stewardship Initiative
  - Mid-Western Workgroup on Carpet Recycling - MOU
- With an EPA grant, negotiate with the Carpet & Rug Institute for the location of a carpet recycling facility in the northwest.

Plan to Do

- Participate in the next National Product Stewardship Institute initiative on:
  - Paint and related products
  - Pesticides
  - Mercury bearing products

Procurement

Ecology should take the lead in purchasing products from manufacturers who demonstrate producer responsibility in regard to the environment as well as other social, human, and economic criteria. Ecology should promote the statewide adoption of these purchasing practices.

Doing

- Work with our own purchasing office to establish an environmentally preferable purchasing policy with decision guidelines that include product stewardship.

- Work with GA to incorporate product stewardship principles into state purchasing specifications. This could include requirements for vendors to take back products at the end of their useful life, and a preference for non-toxic products.

- Work with Ecology's Information and Technology staff to incorporate product stewardship principles into the agency's Request for Information (and subsequent Request for Bid) for print management services for the agency.

Plan to Do

- Ensure our purchasing practices are consistent with and support implementation of the persistent, bio-accumulative and toxic (PBT) strategy and other Ecology or state sustainability strategies.

- Work with the Governor's Office on the development of an Executive Order on Sustainable Government, which will include environmentally preferable purchasing and product stewardship.

- Incorporate Product Stewardship into current computer purchasing contracts. Investigate the possibility of amending the national computer-purchasing contract awarded through the Western States Contracting Alliance.

Recommend

- Identify criteria for environmentally inappropriate products that the state should **not** purchase and provide that information to General Administration for broad distribution and consideration for contracts.

- Incorporate the environmental performance record of companies into vendor qualifications.

Regulation & Permits

Recommend

Ecology and other regulatory agencies should:

- Incorporate product stewardship principles into permitting practices, where appropriate and feasible.

- Build incentives into agency permits and fees to encourage product stewardship.

- Provide regulatory incentives that reward product stewardship efforts, where appropriate.

Training and Technical Assistance

Ecology staff plays a key role in providing training and technical assistance to industry, consumers, and government on ways to incorporate product stewardship principles into daily work decisions

Plan to Do

- Begin dialogue with agency rule writers and permit managers on product stewardship principles. Investigate how to incorporate the principles into permits, provide practical examples, and identify the benefits to industry.

- Incorporate product stewardship into internal training workshops, retreats, and staff meetings held in the agency.

- Participate in and present product stewardship concepts at external conferences and workshop. Take advantage of opportunities at existing venues.

Recommend

- Engage management in identifying opportunities to incorporate product stewardship into their program's work.

Research

Ecology will contribute to the knowledge base by conducting research or funding research projects. It is assumed that research is a necessary component of many of the activities mentioned in this implementation plan. These are some specific projects that Ecology should consider.

Plan to Do

- Prioritize products to focus on maximum environmental improvement. (See Appendix C for the Union of Concerned Scientists listing of most harmful consumer activities).
- Research and publish a list of environmentally "best and worst" products.

Recommend

- Investigate the feasibility of taxes or fee rebates to encourage product stewardship, reuse and remanufacturing.

- Identify the economic benefits of re-manufacturing (see Xerox example, Appendix B), including the impacts to the labor market.

- Document the pollution generating activities that are subsidized by the taxpayer, through government services and infrastructure, to better understand true costs.

Legislation

Ecology can explore possibilities for legislation or policy initiatives to ensure that product stewardship is implemented.

Recommend

- Develop an aggressive product stewardship legislative package, based on a broad stakeholder input process. Create a list of materials and processes that have known threats to human health and the environment, and provide materials sanction authority that prohibits state purchase of products with these materials.

- Propose tax policies that ensure that the price of a product reflects the full cost of production.

Public Involvement

It is necessary to recognize that consumer involvement is critical to the success of product stewardship efforts. We should involve consumers and taxpayers in product stewardship activities.

Plan to Do

- Inform the public of hidden subsidies of polluting activities.
- Inform the public of businesses that are employing product stewardship principles
- Create a public awareness component to complement various product stewardship efforts.

Beyond Waste Project

The Beyond Waste Project utilizes a visionary process to look at short and long term changes that need to be made to move toward zero waste. It will engage stakeholders to think about how product stewardship techniques will help meet the goals of environmental protection, pollution prevention, and sustainability.

Conclusion

Ecology staff in the solid and hazardous waste programs has been increasingly involved in product stewardship and are sought to participate in regional and national activities. Staff find that this involvement in product stewardship amplifies the programs' work to reduced waste in the state. It supports the statutory requirement that we work with industry to reduce, avoid, or eliminate the generation of wastes or the toxicity of wastes, and to maximize reuse and reclamation of valuable spent materials.

Staff plan to accomplish all of the items under the "Doing" category during the 2001-2003 biennium. The items in the "Plan to Do" category are those which must ultimately happen. However, there are barriers to complete this category, such as financial funding or technical support.

The category "Recommend" includes those activities or ideas which, we believe, should be pursued, but for which there is not enough staff or resources designated to carry them out.

APPENDIX A

Product Stewardship Practices

The following is some information taken from the Northwest Product Stewardship Council web page. It describes how product stewardship can be incorporated into production processes. These include:

Materials Management

Producers can reduce environmental impacts by using materials that result in the lowest environmental impacts. Examples include:

- **Sustainable harvest** of materials so that the long term viability of the resource is not jeopardized
- Use of **renewable** materials that are replenished rapidly through solar energy
- Use of **biodegradable** materials that break down into soil without any harmful chemicals or materials entering the ecosystem
- Use of **recycled** and/or **recyclable materials.**
- Use of **Low or No Toxicity** materials that emit, contain, or produce low levels (or zero levels) of chemicals that are hazardous to human health.

Product as a Service (leasing)

In many cases, consumers are not interested in the owning a product, but need the product because it enables them to get a service. For example, consumers usually don't want to own the plastics and glass in a television set, rather they want the service—viewing of TV programs—which the television set provides. Manufacturers that lease their products to consumers have a much better incentive to design durable, up-gradable products.

Dematerialization

Dematerialization means taking materials out of products but still getting the same, or better, performance. Companies dematerialize by substituting intelligence and creativity for materials, by restructuring their products, or resizing the product.

Resource Conservation

Companies can save money as well as the environment by adopting practices that reduce waste, prevent pollution, preserve the climate and conserve habitat.

Product Take-Back

Some manufacturers are taking their old products back when consumers are finished with them. By taking products back, manufacturers can acquire low cost feedstock for manufacturing, or remanufacture parts for re-use.

APPENDIX B

Examples of Product Stewardship

As a policy tool that facilitates sustainable production, product stewardship is still developing. However, there are numerous examples of well-established and innovative programs that illustrate the *practical application* of product stewardship. The examples below have been selected to exemplify three different product stewardship strategies:

- **Design for the Environment** - Product manufacturers reduce environmental impacts by using materials and processes that result in the least environmental impacts.

- **Product Take-back** - A system whereby consumers can return used products for reuse and/or recycling. When the manufacturer shares in the costs of managing the products, they are more likely to consider design and materials changes that will reduce recovery costs and reduce environmental impacts.

- **Product as a Service (leasing)** - The consumer purchases the service the product provides rather that owning the product. Consumers may not want to own the plastics and glass in a television set; rather, they want the service--viewing of TV programs--which the television set provides. Companies that lease their products have a greater incentive to design more durable, lasting products that can be reused or recycled cheaply and efficiently.

All of these strategies effectively reallocate costs and provide a feedback mechanism, resulting in design and production innovations. To help illustrate these product stewardship techniques, examples in electronics, carpet, and hazardous materials are provided below.

Electronics and Electrical Appliances

- **Design for the Environment / Product as a Service**

XEROX

In 1990 the **Xerox** Corporation incorporated end-of-life considerations into product development. Xerox established a system to refurbish leased equipment for reuse, remanufacture, or for salvaging of parts and material recycling.

The program has led to design innovations that recapture maximum value and minimize waste. Design changes include a reduction in the number of different plastic resins, reduced use of hazardous materials, innovative fasteners which allow easy disassembly, and redesign of parts for use across product lines. In order to minimize life-cycle costs, a more expensive material may sometimes be used up front if it increases recovery value at the product's end-of-life.

This program has resulted in the recovery of millions of pounds of metals and plastics and in the remanufacture of 30,000 tons of returned machines. In 1997, it saved the company $40 to $50 million. The success of this program depends on well-established communication between design and asset recovery engineers.[5,6]

DELL and GATEWAY

Some computer manufacturers including **Dell** and **Gateway** have substantial corporate leasing programs. When the used equipment is returned to the manufacturer it may be re-leased, disassembled for parts, or sold to secondary markets. Dell markets their "Asset Recovery Program" as a service to large customers who are upgrading their systems on a regular basis. The customer is freed of the costs and hassles of disposal. Dell designs and manufactures all their computers for serviceability, disassembly, and reuse.

❖ **Product Take-back**

SONY and WASTE MANGEMENT, INC.

In October 2000, **Sony Electronics** and **Waste Management, Inc**., launched an electronics recycling program in Minnesota, the first of its kind in the U.S. Sony brand electronics and personal computer equipment is accepted free of charge at sites owned by Waste Management Inc. This program is the outcome of a product stewardship policy developed in 1999 by Minnesota's Office of Environmental Assistance, and a pilot electronics recovery program initiated by the State, Sony, and Waste Management.[7]

This recycling program successfully reallocates end-of-life management costs from local government and taxpayers to manufacturers. For this to be truly product stewardship the program costs will need to be incorporated into the cost of the product, and Sony will need to consider design and material changes that will not only reduce recovery costs, but also reduce environmental impacts.

Carpet

❖ **Product as a Service / Product Take-back**

INTERFACE

The carpet manufacturer **Interface** incorporated product stewardship into the way it does business with its Evergreen leasing program, carpet maintenance service, and 100 percent recyclable product. This program evolved from internal employee initiative and the leadership of their CEO. Under the original program launched in 1995, the producer was responsible for purchasing, maintaining, and replacing the

[5] EPR: A Materials Policy for the 21st. Century, Bette Fishbein, INFORM, Inc., 2000
[6] WasteWise Update. Extended Product Responsibility, EPA October 1998
[7] Minnesota Office of Environmental Assistance webpage www.moea.mn.us

carpet tiles over the period of the lease, and recycling them at the end-of-life. The program has been redesigned to make it more economically competitive. This has led to considerable experimentation and innovation in the company.[8]

MILLIKEN / COLLINS & AIKMAN

Other carpet manufacturers such as **Milliken** and **Collins and Aikman** (C&A) also have take-back programs and refurbish used carpet. Milliken's Earth Square carpet line is refurbished through a process that cleans the once-used carpet with water only and then the clean carpet is reprinted. Milliken claims this is a 3-step process versus the 39 steps required to recycle carpet. C&A specifically guarantees that a carpet will never be landfilled or incinerated. Recovered carpet is remanufactured into a 100 percent recycled-content carpet backing.[9]

Hazardous Materials

- **Product Take-back**

BRITISH COLUMBIA

British Columbia has established an innovative take-back program for unused paint, oil, flammables, and other hazardous materials. Legislation required manufacturers to establish and design a recovery system. The industry created a nonprofit organization, called Product Care, to manage these materials. There are now over 100 collection depots located throughout the province and a central processing facility operated by an industry supported organization.

RECHARAGEABLE BATTERY RECYCLING CORPORATION

The **Rechargeable Battery Recycling Corporation** (RBRC) is a third-party organization established by battery manufacturers in 1994 to collect and recycle used nickel-cadmium (Ni-Cd) batteries. Founding members include **Panasonic, Sanyo, Eveready, SAFT** and **Varta Batteries**. RBRC is a partnership between industry, government, and consumers. To avoid the burden of multiple, non-standardized rules, RBRC pushed for national management standards, which resulted in the Rechargeable Battery Management Act of 1996. A fee is paid by member firms to RBRC based on the weight of battery. This fee funds the system that collects batteries and returns the valuable recovered materials to the battery production market.

The program accepts batteries from over 20,000 retailers and other consolidation points for recycling. Its goal is to recycle 70 percent of used Ni-Cd batteries by 2003. The result of this program is a reduction in the amount of Nickel and Cadmium entering the waste stream.[10,11] RBRC has now expanded its program to include small sealed lead-acid, nickel-metal-hydride, and lithium chemistry batteries.[12]

[8] Fishbein, EPR: A Materials Policy for the 21st Century, OpCit
[9] Ibid
[10] EPA Waste Wise Update, Op Cit
[11] RBRC webpage www.rbrc.com
[12] Ibid

APPENDIX C

The Most Harmful Consumer Activities[13]

Cars and Light Trucks The manufacture and, more important, the use of consumers' vehicles cause more environmental damage--especially air pollution and global warming --than any other single consumer spending category.

Meat and Poultry Meat and poultry production requires large amounts of water and causes 20 percent of the common (as opposed to toxic) water pollution related to consumer expenditure. It also uses a significant share of the nation's land--800 million acres for grazing livestock and an additional 60 million acres to grow animal feed. Red meat causes especially high amounts of environmental damage for the nutrition it delivers.

Fruit, Vegetables, and Grains Irrigated crops grown to meet consumer demand use an enormous quantity of water (30 percent of consumer-related water use). Pesticides and fertilizers cause 5 percent of consumer-related toxic water pollution. Food crops also use substantial amounts of land.

Household Appliances and Lighting Electricity seems clean and nonpolluting when it's used in the home, but most of it is generated by burning polluting fossil fuels, especially coal. Appliances and lighting are responsible for 15 percent of the greenhouse-gas emissions related to consumer expenditures and 13 percent of consumer-related common air pollution.

Home Heating, Hot Water, and Air Conditioning Cooling and heating homes and water has an impact on global warming and air pollution similar to that of appliances and lighting. Systems that rely on electricity or oil contribute heavily to both problems. Most fireplaces and wood stoves are especially high air polluters.

Home Construction The land and wood used for new homes are responsible for about a quarter of consumers' impact on wildlife and natural ecosystems. Six percent of consumer-related water pollution comes from manufacturing the materials for new homes and disturbing the soil during construction.

Household Water and Sewage Despite advances in sewage treatment, municipal sewage remains a major source (around 11 percent) of water pollution, especially affecting coastal areas and estuaries. Interestingly, households' home water use is only 5 percent of the total compared with nearly 74 percent for food production and distribution.

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[13] From: "Better Homes and Planet," Nucleus The Magazine of the Union of Concerned Scientists Vol. 21 No. 1 Spring 1999 http://www.ucsusa.org/Nucleus/99sp.betterhomes.html and "The Consumer's Guide to Effective Environmental Choices," Michael Brower and Warren Leon, Union Of Concerned Scientists 1999.